



**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No.: 10/663,310  
Filing Date: September 16, 2003  
Applicant: Mau-Song Chou et al.  
Group Art Unit: 2878  
Examiner: Otilia Gabor  
Title: DETECTION AND ANALYSIS OF CHEMICAL AND  
BIOLOGICAL MATERIALS BY PASSIVE EMISSION OF  
TERAHERTZ WAVE AGAINST A COLD BACKGROUND  
TARGET  
Attorney Docket: NGC-00088 (339-804)

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Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**APPELLANT'S SECOND REPLY BRIEF**

This is Appellant's Second Reply Brief pursuant to 37 CFR §41.41 in response to the Examiner's Answer mailed November 30, 2006. This Reply Brief includes the Discussion in the First Reply Brief to the First Examiner's Answer filed May 15, 2006. Appellant believes that no fees are due.

From the Argument section of the Examiner's Answer it appears that the Examiner is relying solely on the language "sub-millimeter spectroscopy" to provide a motivation to combine the Luukanen imaging system with the systems taught by Laufer, Chou or Butler. The Examiner states that sub-millimeter spectroscopy inherently

includes a generation of an emissions spectrum from the object under scrutiny. Appellant respectfully submits that sub-millimeter spectroscopy does not inherently refer to emissions spectrum spectroscopy, but can include other types of spectroscopy, including imaging spectroscopy and absorption spectroscopy.

Further, the language relied on by the Examiner in column 12, lines 43-48 of Luukanen states that the system of the invention can be used not only for searching weapons and smuggled goods, but also for sub-millimeter-range spectroscopy. As Appellant has argued throughout the prosecution of this application, Luukanen only teaches an imaging system. This is clear because Luukanen only discloses detectors that provide imaging, such as antenna coupled bolometers, and not spectrometers. Therefore, Appellant submits that “the system of the invention” is an imaging system.

Appellant refers the Board to the Abstract of Luukanen where it states, “[t]he invention relates to detection performed over millimeter and sub-millimeter wavelengths, especially to imaging solutions functioning over a sub-millimeter-wavelength range. The system of the invention uses detectors, comprising antenna coupled bolometers together with wavelength selective optics.” Appellant respectfully submits that Luukanen specifically states that their sub-millimeter wavelength system is an imaging system.

To support Appellant’s position that sub-millimeter wave radiation can be used for imaging, Appellant hereby provides the chapter on Terahertz Imaging from Mittleman, D., “Sensing with Terahertz Radiation”. Appellant submits that sub-millimeter waves are in the terahertz frequency range. Section 3 in the Terahertz Imaging chapter of this book specifically states, “numerous examples of sub-millimeter

and millimeter-wave imaging can be found in the literature.” Appellant submits that when Luukanen refers to sub-millimeter spectroscopy, he is only referring to sub-millimeter spectroscopy for imaging purposes.

Appellant respectfully submits that there is no teaching in Luukanen et al., or any other reference of record, of providing a cold background in the field-of-view of a sample that is being analyzed using emissions spectroscopy.

In response to the Examiner’s comment concerning Appellant’s Argument that Luukanen uses its cold surface for a different reason than the claimed cold surface, Appellant offers the following comments.

Appellant submits that the Luukanen cold surface is not in the field of view of the bolometer, and is used for enhancing the contrast between the object being imaged and its background where the object 114 reflects the radiation of the cold body 111. Appellant’s claimed cold body is in the field of view of the spectrometer, and thus, to use the word relied on by the Examiner, inherently, allows measurements of the emissions spectrum from the sample by suppressing background emissions so that the sample does not need to be heated.

Applicant is filing concurrently herewith, a Power of Attorney to Prosecute Applications before the USPTO (appointing practitioners associated with the Customer No. 64728 Power of Attorney and changing the Correspondence Address as associated with Customer No. 64728 as identified below) along with a Statement under 37 CFR 3.73(b).

For the reasons given above and in Appellant's Brief, it is respectfully requested that the Examiner's rejection under §103 be reversed.

Respectfully submitted,

WARN, HOFFMANN, MILLER & LaLONE, P.C.

Attorney for Applicants

By: \_\_\_\_\_

  
John A. Miller  
Reg. No. 34985

Dated: 12/12/06  
P.O. Box 70098  
Rochester Hills, MI 48307  
Telephone: (248) 364-4300  
Facsimile: (248) 364-4285